



# CodeRed Business Solutions

*(A Service Disabled Veteran Owned Small Business)*



## FTA Second State of Good Repair Roundtable

Presented by:

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# Introduction

Mr. Humphrey is President and owner of CodeRed Business Solutions (CRBS), a certified Service Disabled Veteran Owned Small Business (SDVOSB) with more than twenty three years of active service in the USAF and eighteen years supporting DoD as a consultant.

CRBS has an extensive background in:

- Logistics Sustainment
- Logistics Modeling & Simulation
- Business Intelligence
- Analysis Support and Training
- IT Configuration Management
- Reengineering of electronic parts
- Real-time Surveillance using Intelligent Distributed Acoustic Sensors

# Supply Chain/Logistics Management From the Department of Defense Perspective



# Key Definitions

- Concept of Operation

- Also called commander's concept, a verbal or graphic statement, in broad outline, of a commander's assumptions or intent in regard to an operation or series of operations. The concept is designed to give an overall picture of the operation and is included primarily for additional clarity of purpose.

- Performance Based Logistics

- **Performance-based logistics (PBL)** is a strategy for system support. Instead of time and material, a supplier is paid for a guaranteed level of performance and system capability. The supplier often has to guarantee the performance at lesser costs but has more control over all logistics elements. The performance is declared in performance-based agreements.

- Integration

- In engineering, **system integration** is the bringing together of the component subsystems into one system and ensuring that the subsystems function together as a system.
- In information technology, systems integration is the process of linking together different computing systems and software applications physically or functionally



# DoD Spares Support

- USAF is Leading Improvement Efforts
  - Organic Support
    - Government Own Facilities providing Depot Maintenance
      - Warner Robins GA (WR-ALC)
      - Ogden UT
  - Contractor Logistic Support (CLS)
    - Performance Based Logistics (PBL)
      - Lockheed Martin (LM)
      - Boeing
  - Public Private Partnerships (PPP)
    - LM & OC-ALC
      - » TF-39 & TF-56 Aircraft Engines

# Key Logistics Objectives

The AF logistics vision is now focused on delivering sustainable capability to the Warfighter. Our Implementation of the logistics Concept of Operations focuses on three key elements:

- # 1 Establishing a Customer-Focused Enterprise-Wide Perspective
- # 2 Developing a lean, *fully Integrated* Logistics Enterprise
- # 3 Data exploitation and predictive logistics awareness



# *Strategy*

# Strategy-Focused Planning

## Mission of Logistics

- Get the Force to the Fight
- Keep the Force in the Fight
- Prepare for the Next Fight

Enabling  
= War-Winning  
Capability

## Vision

- Expeditionary, Net-Centric Operations
- Enterprise Focused Business Systems and Processes
- Lean Operating Principles
- Performance-Based Management

## Goals

- 20% Equipment Availability Improvement
- Reduce Annual Operating Support Cost by 10% NLT FY11

## Objectives

- Ensured Mission Preparedness & Performance
- Improved Reliability of Support
- Lower Total Cost of Support
- Improved Cost/Req'ts Predictability
- Reduced Cycle Times—Lean Business Operating System
- High Performing, Flexible Workforce





# USAF VISION

DELIVER AND SUSTAIN  
THE MOST ADVANCED, **AFFORDABLE**  
STRIKE FIGHTER AIRCRAFT  
TO PROTECT FUTURE GENERATIONS  
WORLDWIDE.



# Integrated Maintenance Information System (IMIS)

- The F-22 Integrated Maintenance Information System (IMIS) integrates the Tech Order Data (TOD), maintenance forms, the aircraft itself to provide the maintainer a single source of maintenance information.
- There are three main components to the F-22's IMIS: the Portable Maintenance Aid (PMA); the deployable, squadron-level Maintenance Support Cluster (MSC), and its back shop counterpart, the Maintenance Work Station.
- Portable Maintenance Aid (PMA)
  - The Portable Maintenance Aid (PMA) is a ruggedized computer that a maintainer takes out to the aircraft. It serves as the primary maintenance interface with the aircraft and its systems.
  - The PMA displays Interactive Electronic Technical Manuals (IETMs), has the capability to order parts, and supports the recording of maintenance actions in maintenance forms.



# Autonomic Logistics Information System

**ALIS consists of the system, application and network infrastructures required to provide global integrated and autonomic support**

- **Single, Secure Information Environment**
- **Distributed Network Based on Web Technologies**
- **Capabilities Integrate Broad Range of Domains**
  - Operations
  - Maintenance
  - Supply Chain
  - Customer Support Services
  - Training
  - Tech Data
  - External Interfaces



**Functionality Focused on Enhancing Operations and Support**

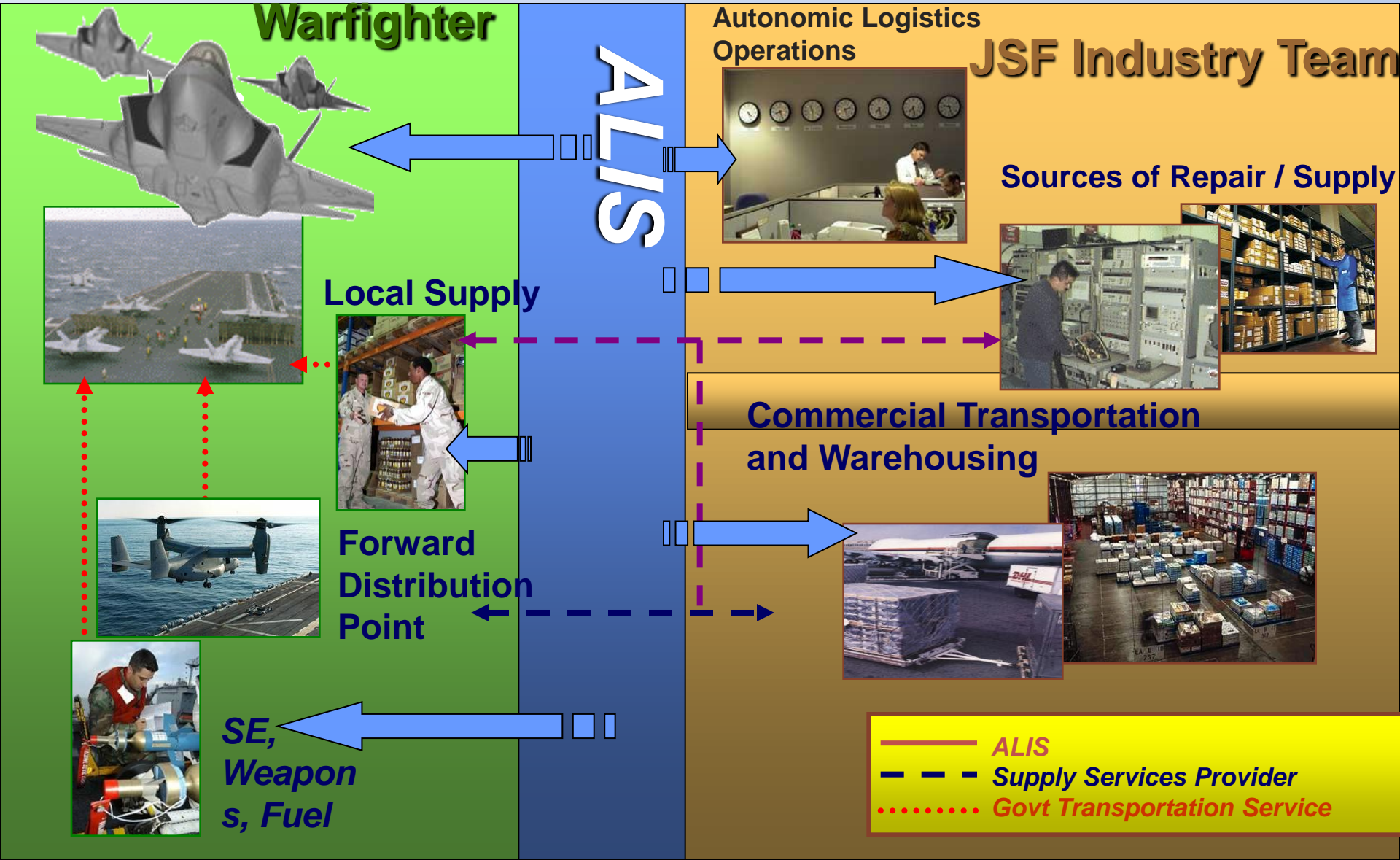
- Decision Support
- Autonomic Process Integration

- Theater Level**  
Immediate Air Asset Allocation
- Wing Level**  
Mission Support Rqmts
- Squadron Level**  
Maintenance & Support Resource Allocation



**“Provide All Information To Support Operations and Maintenance at Any Basing Location”**

# Supply Chain Management Infrastructure





# Logistics Initiatives

## ARCHITECTURE & GOVERNANCE

Logistics Enterprise  
Architecture (LogEA)

Portfolio  
Management

Air Force  
Data Strategy

Performance  
Management

Product Support  
and Engineering

Supply Chain  
Management

Expeditionary  
Operations and C<sup>2</sup>

Maintenance, Repair  
and Overhaul

- Total Life Cycle System Management
  - Product Support Camp
- Condition Based Maintenance+
- Asset Marking and Tracking
- Demand Management
- Operations Safety Suitability & Effectiveness Tools
- Product Life Cycle Mgmt

- Integrated Planning System (IPS/APS)
- Purchasing Supply Chain Management (PSCM)
  - Strategic Sourcing
  - Commodity Councils
  - Supplier Management Tools
- Strategic Distribution
- Weapon System Supply Chain Management

- WFHQ/ Agile Combat Support C2
  - Log Supt Centers
- AF Common Operating Picture
  - I&L COP
- Decision Support Tools

- Field MX & Regional Maintenance
  - CONUS CIRFs
- Re-engineering Depot Maintenance (DMT)
- AF Lean Maintenance Enterprise Integration

## ENABLING PROCESSES AND TECHNOLOGY

Future Financials

Agile Combat Support (ACS)/Assured Connectivity

Workforce

Continuous Process Improvement (CPI)

Change Management (CM)

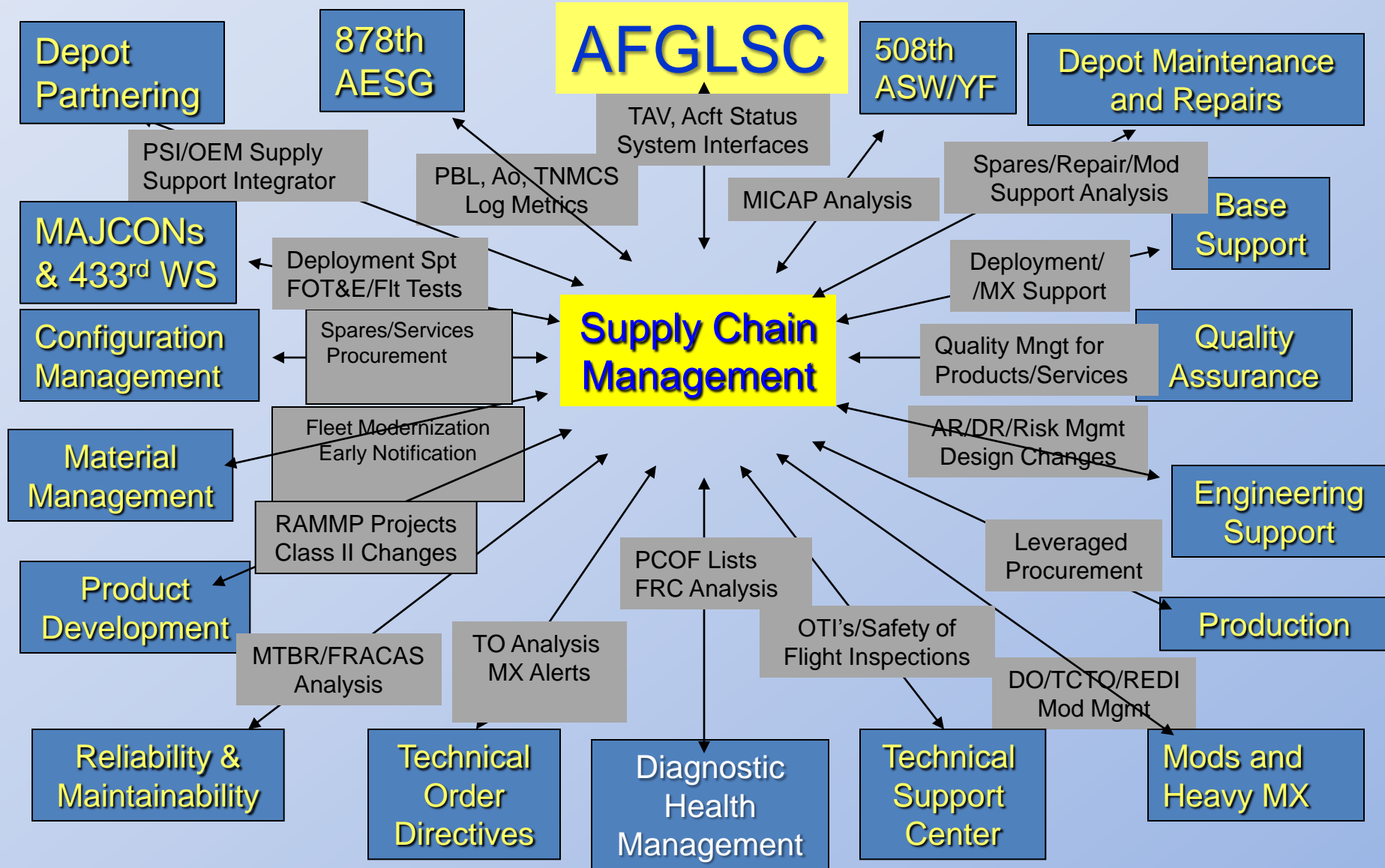
Capability-Based Programming (CBP)

IT Strategy/Expeditionary Combat Support System (ECSS)



# Supply Chain Integration

Key to Weapon System Performance

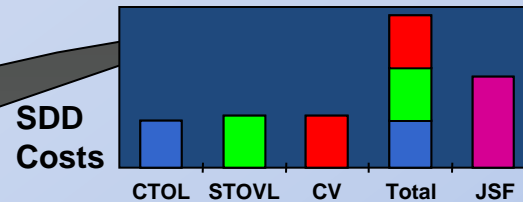


# Affordability – Total Ownership Cost Reduction

## KPPs

Owner	Key Performance Parameter	USMC	USAF	USN	UK
Joint	Radio Frequency Signature	Very Low Observable			
Joint	Combat Radius	450 nm	590 nm	600 nm	450 nm
Joint	Sortie Generation (surge)	6.5 (4)	3.7 (3)	4.4 (3)	4.3 (3)
Joint	Logistics Footprint	4.6 (<8) C-17s	5.9 (<8) C-17s	109 (<243) ST	101 (<102) ST
Joint	Mission Reliability	99 (95) %	98.5 (93)%	98.6 (95)%	98.5 (95)%
Joint	Interoperability	Secure Voice and Data Connectivity			
USMC/UK	Vertical Lift Bring Back	2 x 1K JDAM + 2 x AIM 120 + fuel	N/A	N/A	2 x 1K JDAM + 2 x AIM 120 + fuel
USN	Maximum Approach Speed	N/A	N/A	145 knots	N/A

## SDD



**Airframe: 80-90%  
Common or Cousin Parts**

**Avionics System  
~100% Common**



**Design AV to Minimize  
Resource Demands**

**Sustainment**

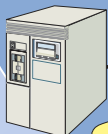
AL Operations



Joint Training



Support



ALIS

**Design Autolog to  
Sense & Respond**

**Performance  
and Price  
Based  
Contract**

**Drive Desired Behaviors**

**Commonality  
Is Key to  
Affordability in  
SDD, URF, O&S**



**Reduced  
Total  
Ownership  
Costs**



# F-15/F-22 Comparison

- As two examples, the slings used to hoist the canopy into position on the assembly line is the exact same sling design that will be used in the field. The same sling used to place the wing leading edge flap is also be used to hoist the flaps and flaperons.
- The F-22 will provide significantly more sorties each day than current fighters.
  - It can be flown on twice as many consecutive sorties,
  - Is twice as reliable, requiring 1/2 the direct maintenance man-hours per flight hour, and 2/3 the turnaround time for its next combat sortie as the F-15C.
  - Also, a 24-aircraft F-22 squadron will require less than 1/2 the C-17 airlift support to deploy for 30 days than is presently required by a comparable F-15 unit (about 7.8 C-17 loads to deploy an F-22 squadron versus the 16 C-17 loads for an F-15C).
  - Additionally, to deploy an F-22 unit, there will be fewer shops required (such as wheel and tires, ejection seat, and pilot equipment), and reduced spares as well.



## *Logistics Process Flow*

# USAF Logistics

## Architecture Construct

Tactical ← **Operational** → Strategic

### Network Ops Shared Services

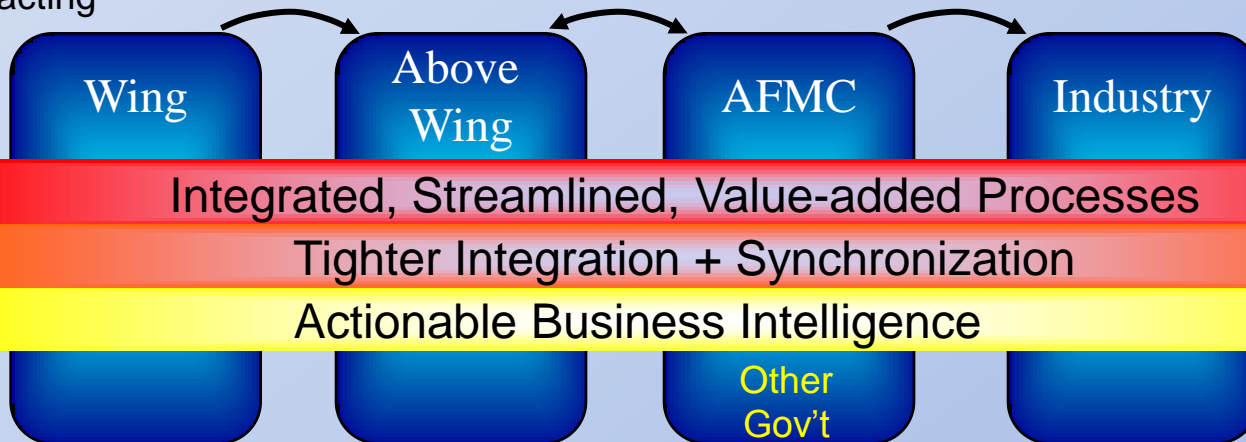
- Regional Supply
- Regional Repair
- Regional Distro
- Shared Contracting

### Enhanced Collaboration

- Central Planning/Synchronization
- Demand–Supply–Repair–Distro
- Performance Agreements

### Transaction Processing

- Inventory Management
- Technical Services
- Back Shop / Support Ops



- Increased Availability
- Decreased Cost
- Duty Day Reduction

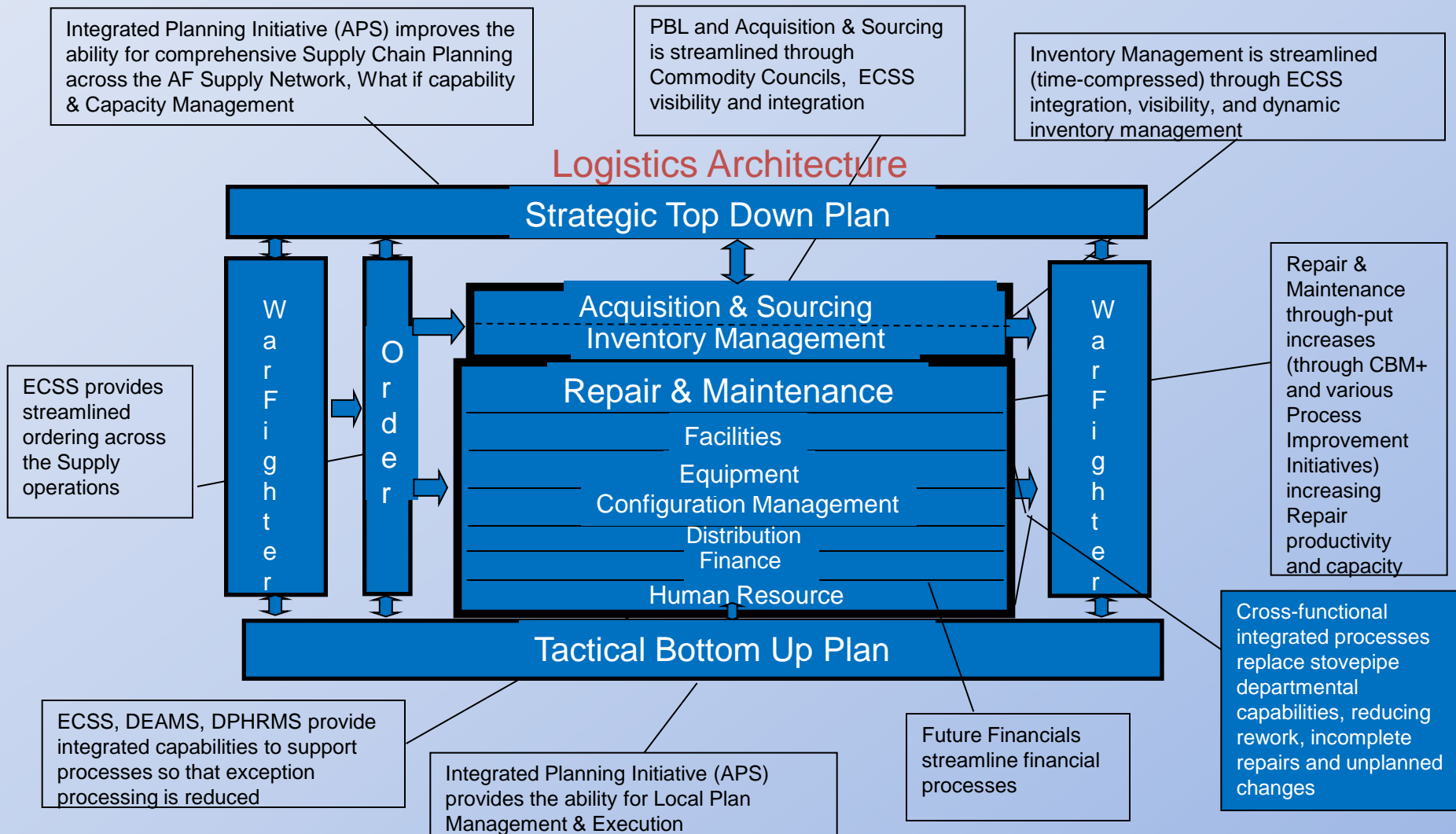
- Sharpen Focus on Fight & Fix
- Integrate FTF

- Region/Global Expeditionary Focus
- Fused Intel/ops Collaboration
- Real Time C2 (MAJCOM & AFFOR)
- Integrate TF

- Enterprise Combat Support Focus
- Enterprise Planning Sourcing
- Network Integration
- Predictive Logistics
- Sharpen Tech Focus
- Performance Driven

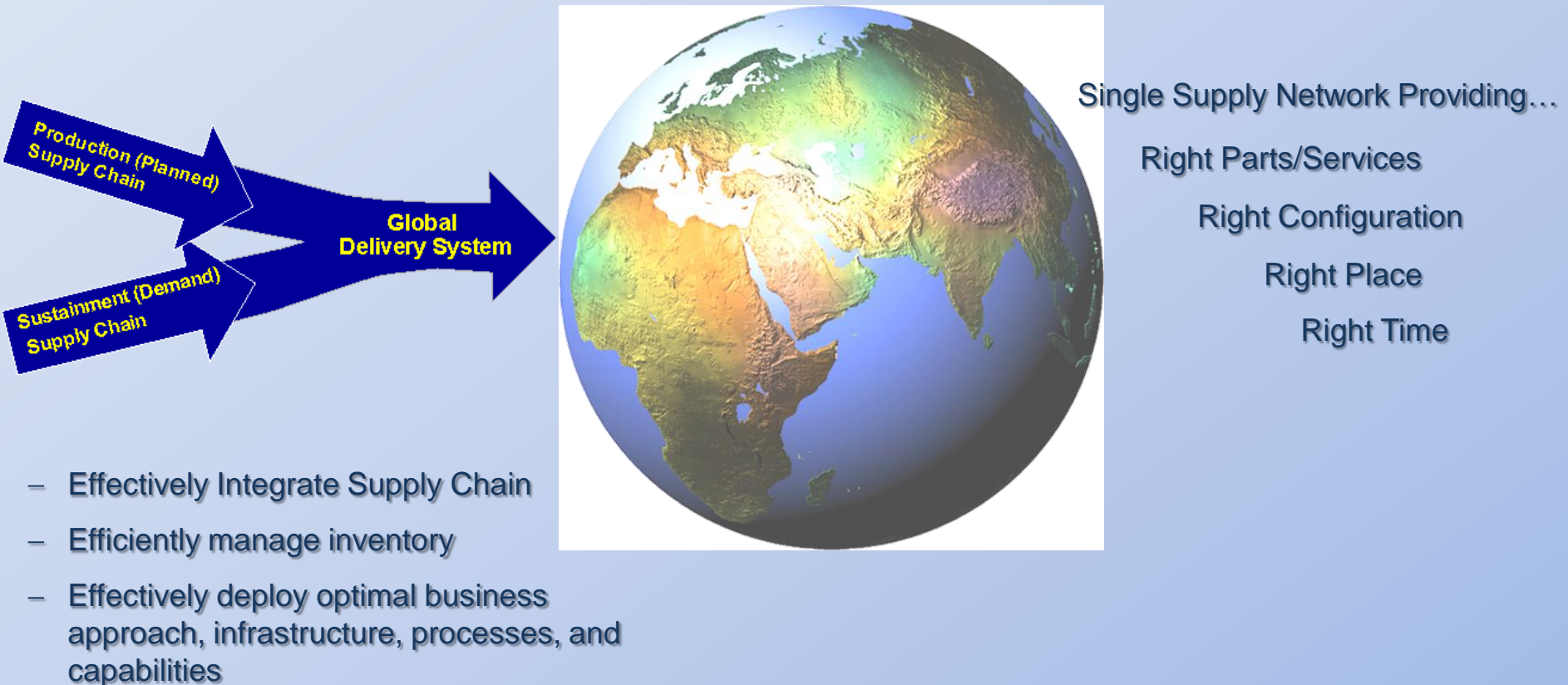
- Fulfillment Agents
- Performance Based & Strategic Sources

# Air Force Logistics



# Delivering Capability to the Enterprise

Developing an Integrated Set of Capabilities (Business Rules, Processes, Infrastructure/Tools, Compliance) Required to Support Program Operations and the Warfighter



Providing an Integrated Global Supply Network

# Lessons Learn from DoD

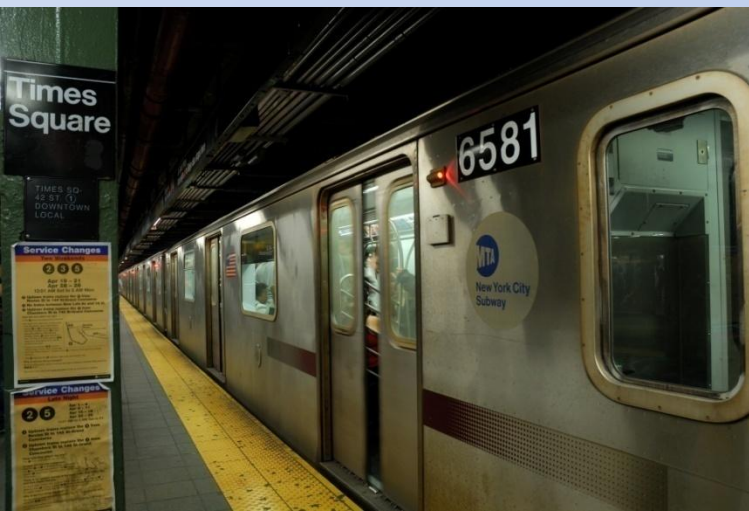
- To create an AFFORDABLE solution, for the LIFE CYCLE, you need to refocus the way you approach Railcar and Bus system design
  - Requires the organization to focus on engineering processes and Reliability (State of Good Repair)
- To have total Asset Visibility you must fully integrate your data systems
  - Turn that data into information to drive engineering decisions which lead to increase reliability and vehicle availability
  - Utilize DoD developed Decision Support Tool and Data Systems already paid for by US tax payers (They are FREE DoD paid R&D)
  - DARPA Has partnered with FTA before.
- Consider a Joint Procurement and Performance Base Logistics Strategy
  - This will Reduce LCC and O&M Cost which is each organization responsibility

# Implications for Transit

- Direct transferability to transit for integrated inventory and maintenance systems
- Less reliance on stored parts and costly spare ratios
- “Right” part at the “right” time for continuity of operations
- Readily available from DoD



# Questions



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*Thank you for your time and consideration!*